

## REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed February 7, 2005. Reconsideration and allowance of the application and pending claims are respectfully requested.

### **I. Drawings Objection**

The drawings have been objected to under 37 C.F.R. 1.83(a) for not showing every feature of the invention specified in the claims. Specifically, the drawings are objected to for not showing "multiple" insulation layers.

Applicant notes that the standard for drawings in patent applications is established by 35 U.S.C. § 113, which provides "The applicant shall furnish a drawing where necessary for the understanding of the subject matter to be patented." 37 C.F.R. § 1.83(a) echoes this law in stating "The applicant for a patent is required to furnish a drawing of his or her invention where necessary for the understanding of the subject matter sought to be patented."

In the present case, at issue are claims 10 and 21 which recite "multiple insulation layers". It is Applicant's position that a further drawing showing "multiple" insulation layers is not "necessary for the understanding of the subject matter to be patented." To the contrary, a person having ordinary skill in the art would readily understand from the original disclosure what is meant by that limitation.

On pages 5 and 6 of the specification, in reference to Figure 2 which shows an illustrative composition of a garment, Applicant states the following:

The insulation layer 18 comprises a nonwoven material (*i.e.*, batt) that comprises a plurality of flame resistant fibers. By way of example, these fibers are made of aramid, melamine, FR rayon, modacrylic, carbon, or the like. The insulation layer material typically has a weight in the range of about 0.75 osy to about 8 osy. In a presently preferred configuration, the insulation layer material has a weight in the range of about 1.5 osy to about 2.7 osy. Notably, *the weight of the insulation layer material used may depend upon how many individual fabric layers the insulation layer 18 comprises. For instance, a single layer of material having a weight of about 2 osy may be substituted with two layers of material having individual weights of about 1 osy or less, if desired.* Irrespective of its weight, the material used to form the insulation layer 18 comprises a three-dimensional pattern (not visible in FIGS. 1 and 2) that forms the aforementioned closed-cell air pockets. [Page 5, line 16 to page 6, line 4 (emphasis added)]

Given the above disclosure, a person having ordinary skill in the art would appreciate that the insulation, which is shown as comprising one layer, could simply include a further layer, thus providing “multiple insulation layers”. Such a further drawing would be duplicative of the existing drawings.

Because a person having ordinary skill in the art would not require a further drawing to understand what is intended by “multiple” insulation layers, Applicant has not provided an additional drawing. Regardless, Applicant believes that the application, as is, is in full compliance with 35 U.S.C. § 113. Accordingly, Applicant respectfully requests that the rejection be withdrawn.

## II. Claim Rejections - 35 U.S.C. § 112, Second Paragraph

Claims 1-32 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. In particular, the Office Action states "It appears that the insulation layer having the three dimensional pattern in combination with another layer forms the closed-cell air pockets and not solely the insulation layer."

Applicant respectfully notes that the Office Action is incorrect on this point. As is defined by Applicant's specification, "closed-cell air pockets" are the pockets 26 alone. Applicant describes the pockets in the following:

FIG. 3 illustrates an example insulation layer material 22 in cross-section. As indicated in this figure, a pattern 24 is imposed upon the insulation layer material 22 that creates a plurality of *closed-cell air pockets 26* on one side of the material that are used to *trap air between the insulation layer 18 and the facecloth layer 20, or the wearer's body if no facecloth layer is provided. These air pockets 26 are designated as "closed-cell" air pockets in that each pocket is separated from adjacent pockets by boundary walls 28 that define the pocket such that air from one air pocket cannot easily mix with air from one or more adjacent air pockets.* This feature impedes heat transfer and therefore increases the insulative effect of the insulation layer 18. As shown in FIG. 3, each air pocket 26 has a transverse dimension, *t*, and a depth dimension, *d*. By way of example, the transverse dimension *t* is within the range of about 1/16 inches to about 1/2 inches and the depth dimension *d* is within the range of about 1/8 inches to about 5/16 inches. [Page 6, lines 5-16 (emphasis added)]

In view of the above excerpt, Applicant has defined “closed-cell air pocket” to comprise a pocket that is “separated from adjacent pockets by boundary walls 28 that define the pocket such that air from one air pocket cannot easily mix with air from one or more adjacent air pockets.” Moreover, the above excerpt clarifies that, while the closed-cell air pockets can be covered by a facecloth layer, the pockets may be used to trap air directly against the wearer’s body *without* the use of a facecloth layer.

In light of this disclosure, Applicant believes that the claims are in full compliance with 35 U.S.C. § 112. Applicant further notes for the record that Applicant is permitted to be it’s own lexicographer in writing the specification and claims. As long as the claims are consistent with the definitions provided in the specification, the claims are acceptable.

Applicant respectfully requests that the rejections to the claims be withdrawn.

### **III. Claim Rejections - 35 U.S.C. § 103(a)**

#### **A. Rejection of Claims 1-13, 15-22, and 24-32**

Claims 1-13, 15-22, and 24-32 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Aldridge (U.S. Pat. No. 5,860,163) in view of Paire (U.S. Pat. No. 5,098,770). Applicant respectfully traverses this rejection.

As has been acknowledged by the Court of Appeals for the Federal Circuit, the U.S. Patent and Trademark Office (“USPTO”) has the burden under section 103 to establish a *prima facie* case of obviousness by showing some objective teaching in the prior art or generally available knowledge of one of ordinary skill in the art that would lead that individual to the claimed invention. *See In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). The Manual of Patent Examining Procedure (MPEP) section 2143

discusses the requirements of a *prima facie* case for obviousness. That section provides as follows:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teaching. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must be found in the prior art, and not based on applicant's disclosure.

In the present case, (i) there is no suggestion or motivation in the art to modify the Aldridge reference as is suggested by the Office Action, (ii) the prior art references do not teach or suggest all the claim limitations, and (iii) there is no reasonable expectation of success. Applicant discusses the applied references and Applicant's claims in the following.

#### 1. The Aldridge Disclosure

Aldridge discloses garments that include thermal liners that have "insulating beads." As is described by Aldridge, a thermal liner 14 includes a fabric substrate 16 to which are applied a plurality of relatively-incompressible, spaced insulating beads 18. Aldridge, column 5, lines 1-7. In one embodiment, the beads are positioned between the fabric substrate and an outer shell 12. Aldridge, column 5, lines 5-7. In another

embodiment, the beads are positioned between the fabric substrate and a moisture barrier/face cloth 56. Aldridge, column 6, lines 9-12.

In each embodiment, the beads are bonded to the fabric substrate by self-adhesion or by using a separate adhesive. Aldridge, e.g., column 5, lines 29-32. In each embodiment, the fabric substrate comprises a woven material. Aldridge, e.g., column 6, lines 27-30.

Significantly, Aldridge says nothing about a batt of fibers (i.e., a non-woven material) or forming a three-dimensional pattern on a batt.

## 2. The Paire Disclosure

Paire discloses a textile that includes a layer 1 of a non-woven, needled material. Paire, Figure 4.

## 3. Discussion of the Rejections

Applicant claims liners and garments that include an insulation layer that forms closed-cell air pockets. For example, independent claim 1 provides as follows (emphasis added):

1. A thermal liner for use in a protective garment, the liner comprising:

an insulation layer comprising a *batt of entangled flame resistant fibers*, the *batt having a three-dimensional pattern* that defines a plurality of *closed-cell air pockets* that are configured to trap air to insulate a wearer of the thermal liner, the insulation layer being shaped and

configured for inclusion in the protective garment and for donning by the wearer.

Applicant respectfully submits that the proposed combination fails to properly render claim 1, or the other independent claims, obvious for several reasons discussed in the following.

**a) Improper Combination of Aldridge and Paire**

As an initial matter, Applicant asserts that the combination of the Aldridge and Paire disclosures is improper. The Office Action admits that Aldridge does not teach or suggest an insulation layer comprising a “batt of entangled flame resistant fibers”. Instead, as is described above, Aldridge only teaches an insulation layer that comprises a woven substrate (specifically, “woven,” “twill,” or “satin weave”). Because of this fact, the Office Action turns to the disclosure of the Paire reference, which teaches use of a non-woven material. In view of that teaching, the Office Action states that “it would have been well within one of ordinary skill in the art to substitute the woven insulation layer 58 with a non-woven insulation layer 1 as taught by Paire.”

One problem with the above-described substitution is that such substitution may not even be possible without rendering the key functionality of the Aldridge garments inoperable. As is described above, Aldridge discloses, and only discloses, “bonding” insulation beads to his woven insulation layer. Therefore, if Aldridge’s woven insulation layer were replaced with Paire’s non-woven layer as is suggested in the Office Action, it follows that Aldridge’s beads would be bonded to that non-woven layer. The Office Action provides no proof, however, that such beads, which are tiny (e.g., 5 to 7 beads per

square centimeter; Aldridge, column 5, lines 25-27), could even be bonded to a non-woven material with acceptable results. Applicant submits that such bonding would be problematic given the random, uneven nature of non-woven batts of loose fibers. This is most likely why Aldridge specifically omits mention a non-woven insulation layer, even though Aldridge describes several other alternatives and even though non-woven layers are nearly conventionally used in the construction of protective garment thermal layers. Again, as is required by the MPEP, there must be a reasonable expectation of success. Applicant submits that there is no expectation of success in bonding tiny beads to a non-woven layer.

Even if such beads could be bonded to a non-woven layer, such an action would clearly not result in the formation of Aldridge's critical "airspace." Specifically, the random, uneven nature of a non-woven batt would not be conducive to formation of an airspace as in the Aldridge disclosure. This is perhaps a further reason that Aldridge uses a flat, woven substrate (see, e.g., Aldridge, Fig. 5).

Irrespective of whether the airspace would not be formed due to the inability to bond Aldridge's beads to a non-woven layer or due to the uneven nature of the non-woven layer, such a result would render key functionality of the Aldridge garments inoperable, and would contradict Aldridge's primary objective in using the beads.

#### **b) Failure to Meet the Claim Limitations**

Even assuming, *arguendo*, that Aldridge and Paire were properly combinable and Aldridge's beads could be bonded to the Paire non-woven layer and could form an



“airspace,” perhaps even more significant is that the proffered combination would still not result in Applicant’s claimed inventions.

**i) “Batt Having a Three-Dimensional Pattern . . .”**

As a first matter, claim 1 recites “an insulation layer comprising a batt of entangled flame resistant fibers, the batt having a three-dimensional pattern that defines a plurality of closed-cell air pockets”. From this limitation, it is clear that it is the insulation layer, and more particularly the batt that forms the insulation layer, *itself* forms the three-dimensional pattern that defines the closed-cell air pockets. Compare this to what Aldridge teaches. Aldridge does not teach an “insulation layer” that has a “three-dimensional pattern.” Instead, Aldridge teaches a flat, woven insulation layer (i.e., fabric substrate 16) upon which are bonded a plurality of beads. Accordingly, Aldridge does not teach an “insulation layer” that has a three-dimensional pattern.

Even if one argued that Aldridge’s “insulation layer” comprised both the fabric substrate *and* the beads, this would still fail to teach or suggest a “*batt having a three-dimensional pattern that defines a plurality of closed-cell air pockets*”. Specifically, that recitation makes it clear that it is the layer of material that forms the pattern and therefore defines the air pockets, not a layer of material in combination with something else (like Aldridge’s beads).

Notably, the other independent claims contain similar recitations. For example, claim 15 recites “an insulation layer comprising a batt of entangled flame resistant fibers, the *batt having a three-dimensional geometric pattern provided on an inner side of the insulation layer that forms a plurality of closed-cell air pockets*” (emphasis added).

Moreover, claim 15 explicitly recites that the closed-cell air pockets “are defined by *boundary walls*” (emphasis added). Neither Aldridge nor Paire teach anything of the sort. In fact, Aldridge teaches the *opposite* configuration. Specifically, Aldridge’s use of beads results in a continuous air pocket that surrounds all of the beads. That air pocket is devoid of any walls. Therefore, it can be said that Aldridge actually *teaches away* from the arrangement described in claim 15.

Regarding claim 24, Aldridge/Paire fails to teach or suggest “a thermal liner including an insulation layer comprising a batt of entangled flame resistant fibers, the *batt having a three-dimensional pattern provided on an inner side of the insulation layer that forms a plurality of closed-cell air pockets* that are configured to trap air to insulate a wearer of the protective garment.”

## **ii) Dependent Claim Limitations**

There are several limitations in Applicant’s dependent claims that are also not taught or suggested by the Aldridge/Paire combination. Applicant discusses several of these limitations in the following.

Beginning with claim 4, neither Aldridge nor Paire teach or suggest closed-cell air pockets that are “defined by boundary walls”, for reasons described above. Again, Aldridge teaches the opposite configuration.

Regarding claim 5, neither Aldridge nor Paire teach or suggest “air pockets” that have “repeated geometric shapes”. Although Aldridge discloses *beads* that have geometric shapes, Aldridge does not teach *air pockets* that have geometric shapes. Similar recitations are found in claims 17 and 26.

In regard to claim 6, neither Aldridge nor Paire teach or suggest “air pockets” that are shaped as “at least one of honeycombs, circles, and triangles”. Again, Aldridge only discloses *beads* that have geometric shapes. Similar recitations are found in claims 17 and 27.

Regarding claims 7-9, neither Aldridge nor Paire teach or suggest the explicitly recited dimensions and weights. Similar recitations are found in claims 18-20 and 28-30.

#### **4. Summary**

In summary, it is Applicant’s position that a *prima facie* for obviousness has not been made against Applicant’s claims. Therefore, it is respectfully submitted that each of those claims is patentable over Aldridge/Paire and that the rejection of these claims should be withdrawn.

#### **B. Rejection of Claims 14 and 23**

Claims 14 and 23 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Aldridge in view of Paire as applied to claims 11 and 23 and further in view of Kelleher, et al. (“Kelleher,” U.S. Pub. No. 2002/0069453). Applicant respectfully traverses this rejection.

As is identified above in reference to independent claims 1 and 15, Aldridge and Paire do not teach or suggest features of Applicant’s claims. In that Kelleher does not remedy the deficiencies of the Aldridge and Paire references, Applicant respectfully submits that claims 14 and 23, which depend from claims 1 and 15, respectively, are allowable over

the Aldridge/Kelleher combination for at least the same reasons that claims 1 and 15 are allowable over Aldridge/Paire.

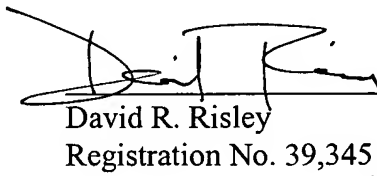
#### **IV. New Claims**

As identified above, claims 33-43 have been added into the application through this Response. Applicant respectfully submits that these new claims describe an invention novel and unobvious in view of the prior art of record and, therefore, respectfully requests that these claims be held to be allowable.

### CONCLUSION

Applicant respectfully submits that Applicant's pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,

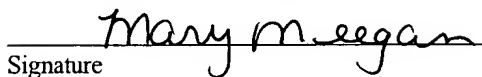
  
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